UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/872,684	06/01/2001	Shelley Cheng	NSC1-D3620	3861

7590 03/16/2004

Alfred A. Equitz
Girard & Equitz LLP
Suite 1110
400 Montgomery Street
San Francisco, CA 94104

EXAMINER	
THOMPSON, MARC D	

ART UNIT	PAPER NUMBER
2144	6

DATE MAILED: 03/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/872,684	Applicant(s) CHENG, SHELLEY	
	Examiner Marc D. Thompson	Art Unit 2144	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 June 2001, Pre-amendment A*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *14-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *14-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 July 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 2.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This application has been examined.

2. Amendment A, Paper #4, received 6/1/2001, has been entered into record.

3. Claims 14-21 are now pending.

Priority

4. This application is a divisional of parent patent application 09/048,468, now United States Patent Number 6,496,869, issued 12/17/2002, allegedly claiming benefit under 35 U.S.C. §120. See, Paper #4, pre-amendment A, entered 6/1/2001. See, Specification section below, for reference of this application and priority status requirement(s) within the present specification for perfection of this priority claim.

5. The effective filing date for the subject matter defined in the pending claims in this application, should the claim to priority become granted and finalized, is 3/26/1998.

Drawings

6. The Examiner contends that the drawings submitted on 7/12/2002 are acceptable for examination proceedings.

Specification

7. A reference to the prior application must be inserted as the first sentence of the specification of this application or in an application data sheet (37 CFR §1.76), if applicant intends to rely on the filing date of the prior application under 35 U.S.C. §119(e) or §120. See 37 CFR §1.78(a). For benefit claims under 35 U.S.C. §120, the reference must include the relationship (i.e., continuation, divisional, or continuation-in-part) of all nonprovisional applications. Also, the current status of all nonprovisional parent applications referenced should

be included. This application is a utility or plant application filed under 35 U.S.C. §111(a) on or after November 29, 2000, so the specific reference to the prior application must be submitted during the pendency of the application and within the later of four months from the actual filing date of the application or sixteen months from the filing date of the prior application. This time period is not extendable and a failure to submit the reference required by 35 U.S.C. §119(e) and/or §120, where applicable, within this time period is considered a waiver of any benefit of such prior application(s) under 35 U.S.C. §§119(e), 120, 121 and 365(c). A priority claim filed after the required time period may be accepted if it is accompanied by a grantable petition to accept an unintentionally delayed claim for priority under 35 U.S.C. §§119(e), 120, 121 and 365(c). The petition must be accompanied by (1) the reference required by 35 U.S.C. §§120 or 119(e) and 37 CFR §§1.78(a)(2) or (a)(5) to the prior application (unless previously submitted), (2) a surcharge under 37 CFR §1.17(t), and (3) a statement that the entire delay between the date the claim was due under 37 CFR §1.78(a)(2) or (a)(5) and the date the claim was filed was unintentional. The Director may require additional information where there is a question whether the delay was unintentional. The petition should be addressed to: Mail Stop Petition, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Information Disclosure Statement

8. The information disclosure statement filed on 6/1/2001, Paper #2, references non-patent literature (NPL) documents not present in the application file. Further, these document citations do not provide enough information for accurate, unique identification and/or subsequent retrieval by the Examiner from another source. Thus, since the documents are unavailable to the Examiner, they cannot be considered. This is so indicated on the returned PTO-1449 form

(Paper #2), enclosed herewith, having traditional lines struck through the NPL documents in accordance with MPEP §609. Should Applicant require express consideration of these document(s), submission of these documents for future consideration on an additional IDS form is suggested.

Claim Rejections - 35 USC § 112

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claims 14-21 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

11. Claim 14 recites the limitations "media access control is configured to perform a filtering operation on incoming frame data from the media interface" (Lines 6-7) and "passing the first frame data from the media interface to the buffer manager if the filtering operation performed on the first frame data by the media access control passes said first frame data" (Lines 8-10). In short, this latter citation "passes" the data [to the buffer manager] if the data "passes" [from the media access control]. The inability to ascertain metes and bounds of the criteria of the "passing" (i.e., filtering) of information renders these claims indefinite. It is unclear what criterion is utilized to "pass" or filter information at the media control access layer. No indication how this filtering functionality differs from the controlling of access to the media inherently present in a media access control component is described. For claim interpretation, the "filtering" of traffic destined for routing (either to this or anther network node) will be considered functionally equivalent to this claimed functionality. That is, the media access

control (MAC) layer, typically coupling an Ethernet or ATM media to a processing device (e.g., computer terminal, router, switch, etc.), controls acceptance of received information (e.g., frames and/or cells) into resident buffers by filtering information specifically destined for that particular terminal, or buffering information for retransmission on an outgoing port, or both. After all, memory is wasted if information was buffered and frames/cells are not destined for a connected network or a known, specific terminal, and bandwidth was wasted transmitting information which would only return to the device. Wasting of bandwidth or memory was earnestly avoided in the art at the time of invention. Thus, this portion of the claim is interpreted as directly relating to the "passing" of information specifically addressed to a particular terminal, or a particular network, from the MAC to a buffer manager for subsequent storage or transmission.

12. Claims 15-21 inherit the deficiencies of independent claim14.

Clarification is required.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. §103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

14. Claims 14-21 are rejected under 35 U.S.C. §103(a) as being unpatentable over Hill et al. (U.S. Patent Number 5,796,944), hereinafter referred to as Hill, in view of Davie, "A Host-Network Interface Architecture for ATM", ACM SIGCOMM, Volume 21, Issue 4, pp.307-315, August 1991, hereinafter referred to as Davie.

15. Hill disclosed a network interface card operating to process, store, forward, filter, segment, reassemble, receive and transmit network frames. See, inter alia, Column 4, Lines 3-24, and Column 5, Lines 44-62. The teachings further described express buffer management. See, inter alia, Column 2, Lines 35-54, and Column 4, Lines 17-20. Thus, the reception of network frames, subsequent buffering of these frames controlled by a buffer manager, and one type of filtering of incoming framed data was disclosed. See, inter alia, Column 4, Lines 57-64, Column 7, Lines 28-45, and Column 13, Lines 39-56. This latter section described how one type of frame filtering was performed and the completion of packet/frame reception. Hill expressly disclosed buffer management functionality though use of the Buffer Management ASIC (BMA)(22), using multiple word addressing and storage, sequential addresses in buffer memor(ies), and specific address management using an Address Management ASIC(32). See, inter alia, Column 2, Lines 35-54, Column 4, Lines 3-24, Column 7, Lines 13-27, and Column 14, Lines 12-33.

16. Lastly, Examiner notes the totality of the Hill disclosure as encompassing several hundred more pages of technical description (inter alia, Column 5, Lines 15-20, Column 6, Lines 5-13, and Column 7, Lines 40-45) which are not currently referenced or currently cited, but should not be entirely ignored. These documents are fully incorporated by reference into the Hill document, itself being provided by Applicant, and may contain features of the claimed invention not yet present.

17. While Hill disclosed the invention substantially as claimed, Hill did not expressly disclose the writing of a second frame into receive buffer memory while another, first (previously transferred) frame is simultaneously being read out of the reception buffer memory.

Since Hill dealt directly with high speed network packet processing and transfer with a variety of media (i.e., network) types (Column 1, Lines 12-45), and the movement of network information to the memory of an arbitrary host machine, an ordinary artisan would have been motivated to search the related arts for teachings related to the access of information from a host looking to access received information. In the same art of high speed network interfacing, Davie disclosed the use of dual-ported memory in conjunction with direct memory access (DMA) transfer of information to a host processor.

18. In short, Davie disclosed the combination of the transfer (reading) of buffer memory by/to a host memory segment, while the network interface continued to receive information from the network, also being buffered under the control of buffer management. See, inter alia, Pages 310-311, and Figures 2 and 3. The use of dual-port memory allowed simultaneous access to previously buffered frame data received from the network and currently frame data being buffered. See, inter alia, Sections 3.1 and 4.1.

19. It would have been obvious to one of ordinary skill in the art at the time of invention to modify the internetworking frame processing system of Hill with the frame processing using dual-port memory provided by Davie in order to increase the speed of transfer of received frame information into host memory for suitable network or transport layer protocol processing, perhaps specifically destined for that particular network device.

20. Since the claimed invention recite elements found within this combination of teachings, claims 14-21 are rejected.

21. Claims 14-21 are rejected under 35 U.S.C. §103(a) as being unpatentable over Petersen et al. (U.S. Patent Number 5,299,313), hereinafter referred to as Petersen, in view of Gaddis et al. (U.S. Patent Number 5,815,501), hereinafter referred to as Gaddis.

22. Petersen disclosed buffer management and frame reception and filtering, where the memory containing the buffers for frame reception and transmission staging was distinct from host based memory. See, inter alia, Column 1, Line 60 through Column 2, Line 14. The received frame data was transferred to the host memory using specific logic for this purpose (i.e. upload DMA logic). See, inter alia, Column 2, Lines 48-51, and Column 8, Line 64 through Column 9, Line 21. Typical media access control to buffer functionality was expressly disclosed, inter alia, in the background of the invention at Column 1, Lines 23-31. Petersen disclosed interfacing the host bus (EISA) and controlling the use of this bus for information transfer to the host memory and processor. See, inter alia, Column 6, Lines 4-28.

23. Since the RAM interface bus (50) was disclosed as distinctly different from the host bus interface (51) (e.g., EISA) (Figure 2, and Column 5, Lines 4-13), an artisan of ordinary skill in the art at the time of invention would have been motivated to explore bus contention teachings to minimize any inherent delay during the use of these buses; that is, the disclosed designation of master/slave status of the host bus, the provision for Master/Slave "union", and associated discussion of buss usage would have motivated an ordinary artisan at the time of invention to explore related bus arbitration arts to maximize functionality of the invention as a whole. Additionally, an ordinary artisan implementing the Petersen teachings would have been motivated to search the related arts for similar network processing methodologies in order to take advantage of any isolated improved functionality.

24. In the same art of high speed network frame processing, Gaddis disclosed the use of dual port memory modules in a network processing device which functioned to isolate the two buses (i.e., the host bus, and the network adapter/network bus). See, inter alia, Column 1, Line 52 through Column 2, Line 35, and Column 6, Lines 56-67. This directly dealt with bus contention, simultaneous access of shared memory segments, as well as disclosing many similar details well known in a network processing environment – buffer management, DMA transfer of host destined information, filtering host framed information, FIFO usage, and various media types (i.e., Ethernet and ATM interfacing). The teachings of Gaddis provided further, enhanced functionality of a typical network processing device known in the art at the time of invention.

25. It would have been obvious to modify the system of Petersen with the teachings of Gaddis in order to, minimally, enhance DMA transfer of information to a host memory segment, as well as eliminating bus contention by physically isolating the buses from each other without significant modification to the overall structure of Petersen.

26. Thus, since the combination of Petersen and Gaddis disclose all the claimed limitations as set forth in the claimed invention, claims 14-21 are rejected.

Response to Arguments

27. The arguments presented by Applicant in Amendment A, Paper #4, received 6/1/2001, are not considered persuasive.

28. Applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references. Further, Applicant's arguments do not comply with 37 CFR 1.111(c) because they do not clearly point out

the patentable novelty which he or she thinks the claims present in view of the state of the art disclosed by the references cited or the objections previously set forth in the parent case(s) as cited by Applicant. Further, they do not show how the amendments would avoid such references or objections if set forth in the current application.

29. Examiner takes Official Notice (see MPEP §2144.03) that connection of media access control (hardware/software) to a media interface (network bus), configured to filter incoming frame data (determine if frame was to be processed for further processing on this terminal), the use of a "buffer manager" (memory storage manager) coupled with the MAC (network media) configured to receive frame data, use of circular and first-in, first-out (FIFO) incoming and outgoing buffers, and a memory wherein the buffer manager wrote the frame data (for storage), and "dual port memory" for simultaneous access (i.e., reading and writing) from two distinct information transport buses (namely, the host processing bus and the network interface card bus), were all notoriously well known in the art at the time the invention was made. Further, direct memory access (DMA) were widely utilized in related arts for many, many years prior to the filing of the instant invention. DMA operations typically allowed direct usage of host based memory segments for storage of received network frames. Since these transactions occur on the system bus, there is no contention on the network card bus, allowing simultaneous transfer of information from the network to the card, and the card to the host, as claimed. All these functional elements were well known in the art, and are easily verifiable in the prior art previously submitted and currently cited.

Thus, the invention as claimed in claim 1 (and a number of the dependent claims), were notoriously well known in the art at the time the invention was made, as seen by the disclosure of

prior art in the present specification, submitted prior art documentation, and newly cited prior art. The described functionality and claimed components were commonly found on common network interface cards (with dual port RAM) available on the market well before and at the time the invention was made.

The Applicant is entitled to traverse any/all official notice taken in this action according to MPEP § 2144.03. However, MPEP § 2144.03 further states "See also *In re Boon*, 439 F.2d 724, 169 USPQ 231 (CCPA 1971) (a challenge to the taking of judicial notice must contain adequate information or argument to create on its face a reasonable doubt regarding the circumstances justifying the judicial notice)." Specifically, *In re Boon*, 169 USPQ 231, 234 states "as we held in Ahlert, an applicant must be given the opportunity to challenge either the correctness of the fact asserted or the notoriety or repute of the reference cited in support of the assertion. We did not mean to imply by this statement that a bald challenge, with nothing more, would be all that was needed". Further note that 37 CFR § 1.671(c)(3) states "Judicial notice means official notice". Thus, a traversal by the Applicant that is merely "a bald challenge, with nothing more" will be given very little weight.

30. Applicant asserts that the presented claims are "clearly patentable" over the submitted and previously applied prior art of record. See, Amendment A, Paper #4, Page 2, Bottom, Section "Remarks". It is noted that various references, including newly cited documents, substantially teach the invention as set forth in the claims, since the claimed functionality recited basic, standard functionality as was well known in the art at the time of invention. The Hill teachings were chosen since many of the claimed features were clearly described, and Examiner encourages Applicant to clarify how the claims are "clearly patentable" over this art, as asserted.

31. Lastly, as a general matter, not only the specific teachings of a reference but also reasonable inferences which an artisan would have logically drawn therefrom may be properly evaluated in formulating a rejection. *In re Preda*, 401 F.2d 825, 159 USPQ 342 (CCPA 1968) and *In re Sherpard*, 319 F.2d 194, 138 USPQ 148 (CCPA 1963). Skill in the art is presumed. *In re Sovish*, 769 F.2d 738, 226 USPQ 771 (Fed. Cir. 1985). Furthermore, artisans must be presumed to know something about the art apart from what the references disclose. *In re Jacoby*, 309 F.2d 738, 226 USPQ 317 (CCPA 1962). The conclusion of obviousness may be made from common knowledge and common sense of a person of ordinary skill in the art without any specific hint or suggestion in a particular reference. *In re Bozek*, 416 F.2d 738, 1385 USPQ 545 (CCPA 1969). Every reference relies to some extent on knowledge of persons skilled in the to complement that which is disclosed therein. *In re Bode*, 550 F.2d 656, 193 USPQ 545 (CCPA 1977). Finally, In re McLaughlin, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971), clearly states "any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning, but so long as it takes into account only knowledge which was within level of ordinary skill at the time claimed invention was made and does not include knowledge gleaned only from applicant's disclosure, reconstruction is proper". Since the subject matter as set forth in the claims was well known at the time of invention, the Examiner contends that significant modification and clarification of the claims and claimed functionality occur before discussion of patentability begins. Applicant is encouraged to amend the claims, and discuss, in extreme detail, the functionality set forth in the claims, and how this functionality differs from what was known in the art and the art as currently applied.

Conclusion

32. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

33. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Marc Thompson whose telephone number is (703) 308-6750. The Examiner can normally be reached on Monday-Friday from 9am to 4pm. If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Jack Harvey, can be reached at (703) 305-9705. The fax phone number for this Group is (703) 872-9306. Inquiries of a general nature relating to the general status of this application or proceeding should be directed to the 2100 Group receptionist whose telephone number is (703) 305-3900.

MARC THOMPSON

MARC D. THOMPSON
PRIMARY EXAMINER

Marc D. Thompson
Primary Examiner
Art Unit 2142